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In Memoriam

Walter Fuhrmann

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Walter Fuhrmann (Fig. 1), Professor Emeritus of Human Genetics, University of Gießen, Germany, died on 19 October, 1995, 10 days after coronary bypass surgery, of *Pseudomonas* pneumonia. We have lost a distinguished medical geneticist.

Fuhrmann was born on September 12, 1924 in Berlin, where he lived with intermissions until 1962. I first met him in 1938; we went to school together and, after our lucky return from World War II, both of us studied medicine. He finished medical school in 1951, and was one of the first German physicians to be invited to the United States for a rotating internship. Having worked in Elizabeth, NJ and Boston for over 2 years, he came back to Berlin and specialized in pediatrics. His experience as a pediatrician—and our friendship—inspired him to choose medical genetics as field of scientific interest. He spent 1963 in David Hsia's group at Chicago working on hereditary metabolic diseases. Afterwards, he joined our Heidelberg group for 3 years until he was offered in 1966 the newly founded Chair of Human Genetics at Gießen University. Despite attractive offers from other universities, he stayed in Gießen from 1967 until his retirement in 1992.

During the late 1950s and early 1960s, he published a number of papers on families with genetic anomalies; but the study which made him best known internationally was a case-control study on malformations of the heart which was published in 1961, and in which he devoted special care to the problem of finding adequate controls. In Chicago, he mainly worked out interesting results on carbohydrate-induced hyperlipidemia. Later in Heidelberg, he supplemented his studies on congenital heart disease by a comprehensive investigation of families in which 2 sibs with heart malformations had been born. He was the first to give reliable empiric risk figures for such families. Another field of interest, to which he contributed important observations, was malformations of limbs. Already in the 1950s, he had reported (together with his wife Annemarie Fuhrmann-Rieger), on a case and a pedigree of the OFD syndrome; later he worked out clinical and genetic details of this syndrome, one of the first examples of the X-linked dominant mode of inheritance with lethality of male hemizygotes. In addition to many other medical genetic studies, he published a book in which basic facts and concepts of medical genetics were explained succinctly for physicians. Together in 1968 we wrote a small book on genetic counseling, which, up to the mid-1980s, went through 12 editions in seven languages, among them three in English. This book helped make genetic counseling better known among physicians in Germany and in many other parts of the world.

In 1967, in Gießen, he founded an entirely new institute; cooperation with a medical faculty and with local practitioners had to be established. His activities were widespread and comprehensive. In addition to establishing genetic diagnosis and counseling services, he used his unusual expertise in birth defects and genetic diseases to help his clinical colleagues solve tricky diagnostic problems. His own scientific interest was centered around cardiac and vascular anomalies. Publications on topics such as heart malformations, anomalies of heart action demonstrated by ECG, and cardiac signs of metabolic diseases made him an international expert in this neglected field. However, more and more, another group of problems occupied his interest: prenatal diagnosis of neural tube defects and other anomalies, such as Down syndrome, by studies of AFP and other metabolites in amniotic fluid and maternal blood. Together with obstetricians, he elimi-

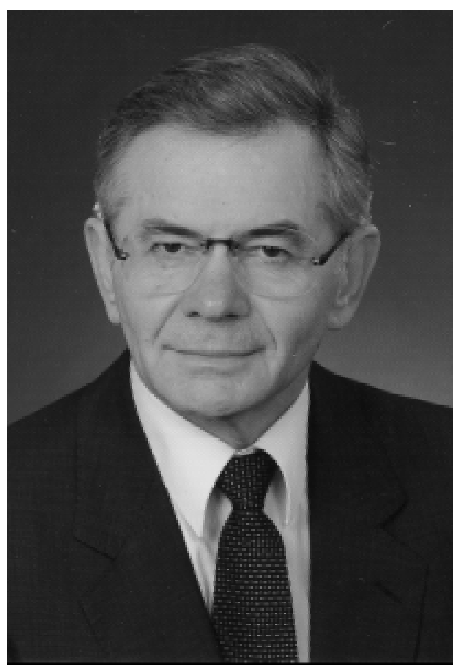

Fig.1

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TABLE I. Contributions of Walter Fuhrmann to Medical Genetics, as Cited by McKusick [1994]

MIM 109400 Nevoid basal cell nevus syndrome [Lorenz and Fuhrmann, 1978].
MIM 113310 Brachydactyly-ectrodactyly with fibular aplasia or hypoplasia [Genuardi et al., 1990].
MIM 119550 CPLS syndrome [Fuhrmann et al., 1972].
MIM 126950 Dwarfism with tall vertebrae [Fuhrmann et al., 1972].
MIM 143050 Humeroradial synostosis [Fuhrmann et al., 1966].
MIM 158170 Monosomy 9p-syndrome [Hoo et al., 1982].
MIM 171500 ACP1, Arg105Gln [Fuhrmann and Lichte, 1966].
MIM 173800 Poland anomaly [Furhmann et al., 1971; Fuhrmann, 1972].
MIm 176270 Prader-Willi syndrome [Fuhrmann-Rieger et al., 1984].
MIM 186500 "WL syndrome," synostoses, multiple, with brachydactyly (symphalangism-brachydactyly syndrome; WL syndrome; deafness-symphalangism syndrome of Herrmann; facioaudio-symphalangism syndrome) [Fuhrmann et al., 1966].
MIM 206500 Anencephaly [Fuhrmann et al., 1971], an important paper in English on apparent monogenic inheritance of anencephaly and spina bifida in a kindred.
MIm 216550 Cohen syndrome [Fuhrmann-Rieger et al., 1984].
MIM 223370 Dubowitz syndrome [Berthold et al., 1987], reporting fatal aplastic anemia in this condition.
MIM 223550 Dwarfism, proportionate, with hip dislocation [Fuhrmann, 1972].
MIM 228930 Fibular aplasia or hypoplasia, femoral bowing and poly-, syn-, and oligodactyly (Fuhrmann syndrome) [Fuhrmann et al., 1980, 1982].
MIM 252100 OFD II [Fuhrmann and Stahl, 1970].
MIM 273750 MMM-dolichospondylic dysplasia [Fuhrmann et al., 1972].
MIM 311200 OFD I [Fuhrmann and Vogel, 1960; Fuhrmann et al., 1966].

nated many premature and poorly founded concepts and recommendations, and worked out clear rules for diagnosis, prognosis, and therapeutic action. In this way, he helped numerous families in often-difficult decisions.

In solving these problems, his best abilities showed up: clear and exact thinking; a critical attitude toward overenthusiastic conclusions with wishful thinking; but also the ability to arrive at a decision, and to stick to it and defend it whenever necessary. These abilities, together with absolute honesty and reliability, were responsible for his high reputation among colleagues and coworkers.

Retirement from his academic functions did not mean an end to his work in medical genetics. Among his more recent publications, a contribution on genetic counseling and screening in pregnancy to a new book on prenatal diagnosis and therapy (published by Wiss. Verlagsanstalt Stuttgart) is especially valuable.

Medical geneticists all over the world have suffered a severe loss through his death. For me, the human loss is much more severe. Since we had come to know one another as schoolboys in 1938, our lives had proceeded in parallel. We were friends in the full meaning of the word, connected in a friendship which was founded on mutual trust and very similar purposes in life. I shall miss him badly.

ACKNOWLEDGMENTS

My gratitude goes to Ms. LaVelle M. Spano for retyping this manuscript.

APPENDIX A: BIBLIOGRAPHIC COMMENTS

In addition to the items cited in Table I from the 11th edition of McKusick [1994], the following publications deserve note.

BOOKS

Two are mentioned in the above text; the third appeared in 1970 and was entitled, "Genetics, Modern Medicine and the Future of Human Kind" [Genetik, Moderne Medizin und Zukunft des Menschen, Munich, Goldmann, Wissenschaftliches Taschenbuch].

HANDBOOK ARTICLES (ALL IN GERMAN)

- Genetic and peristatic causes of congenital angiocardiopathies [1962].
- Chapters on the heart and vascular anomalies in Becker's "*Handbuch der Humangenetik,*" Stuttgart, Thieme, [1972].
- Formal genetics of humans and genetic aspects of malformations ["Hdb Allg Pathol," Altmann et al. (eds) Springer, 1974].
- Heredity and Constitution ["Orthopädie in Praxis und Klinik," Stuttgart, Thieme, 1980].
- Hereditary diseases ["Kindler's Enzyklopaedie Der Mensch," Kindler, 1982].
- Early recognition and prevention of anencephaly and meningomyelocele . . . Federal Ministry for Research and Technology Report, 1984.
- Genetic counseling, prenatal diagnosis in "Klinik der Frauenheilkunde und Geburtshilfe," Wulf et al. (eds) Munich, Urban and Schwarzenberg, 1992.
- Genetic aspects of congenital malformations of the heart and great vessels, in "Spezielle Pathologische Anatomie," Doerr W, Seifert G (eds), Berlin, Springer, 1993 (one of the best reviews on the subject in print!).

TEXTBOOK CHAPTERS

Textbook chapters covered genetic aspects of lipidoses (1967), genetic basis of rheumatic carditis (1968), inheritance in congenital heart disease (1968), genetic considerations of family planning (1969), genetic aspects of hyperlipidemias (1969), diabetes mellitus and the hyperlipidemias (1976), early recognition of fetal anomalies on the basis of maternal serum and amniotic fluid (1984), risks to the unborn (1986), prenatal diagnosis of neurologic diseases (1986), genetic aspects of artificial insemination (1988), pregnancy protein markers of congenital anomalies (1988), prenatal diagnosis (1989), genetic counseling and prenatal diagnosis (1990), introduction to human genetics (1990) genetic counseling (1993), counseling and screening in family planning and pregnancy (1995).

SELECTED PAPERS

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Lorenz R, Fuhrmann W (1978): Familial basal cell naevus syndrome. Hum Genet 44:153–163.

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